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April 27, 2017

VIA, ELECTRONIC FILING
The Honorable Jocelyn Boyd
Chief Clerk and Administrator
The Public Service Commission of South Carolina
101 Executive Center Drive
Columbia, South Carolina 29210

Re:
- **Docket Number 2016-8-E**
- **Comments on Behalf of Intervenor, Adger Solar, LLC**

Dear Ms. Boyd:

Enclosed for filing please find Comments of Timothy Daniels on behalf of Adger Solar, LLC, Docket Cover Sheet and Certificate of Service.

All parties of record have been served. Please notify the undersigned if you there is anything else you may need.

Respectfully Submitted,

/S/_____
Richard L. Whitt

RLW/cas

COMMENTS OF TIMOTHY DANIELS

ON BEHALF OF ADGER SOLAR, LLC

DOCKET NO. 2016-8-E

APRIL 27, 2017

I. Overview of Adger Solar, LLC, ("Adger").

Adger is a developer of utility-scale solar farms that has been active in the South Carolina market since early 2014. Adger has over 500 MWac of utility-scale solar projects under development with proposed interconnections to the transmission systems of SCE&G, Duke Energy Carolinas, Duke Energy Progress, and Santee Cooper. Since mid-2016, Adger has announced planned investments in two 68 MWac solar farms in Clarendon County, South Carolina totaling approximately $200 million in investment. Additionally, Adger sold its first two solar projects in South Carolina to Dominion in November 2016. These two projects include a 10 MWac and a 71.4 MWac solar farm both of which will sell 100% of their energy to SCE&G under long-term contracts. The environmental attributes from the 71.4 MWac project were sold under long-term contract to Solvay to help it meet the company's corporate green power targets and to supply its five manufacturing facilities in South Carolina located in Charleston, Greenville, Spartanburg, Piedmont, and Rock Hill. Both projects are now under construction and expected to achieve commercial operations in 2017.

II. Duke Energy Progress' ("DEP") Integrated Resource Plan ("IRP") Should Make Specific Commitment to Pursue Utility-Scale Solar in South Carolina Beyond what is Required Pursuant to the Distributed Energy Resource, ("DER") Program.

Beyond DEP's discussion of the DER program and its obligation to pursue 26 MWac of utility-scale solar[1], DEP appears to make no explicit commitment to pursue additional solar in the State of South Carolina, despite the fact that DEP estimates that an additional 908-3,293 MWac of solar will be added to its system across both states between 2017 and 2031[2]. By comparison, while SCE&G is only required to pursue 42 MWac of utility-scale solar under the DER program, SCE&G's expert testimony from Joseph M. Lynch in the fuels proceeding (Docket 2017-2-E) states that SCE&G soon expects to have approximately 545 MWac of utility-scale solar under contract[3]. Additionally, SCE&G has communicated no intention to cease offering both 15 and 20-year avoided cost contracts to utility-scale solar that are Qualifying Facilities under PURPA suggesting that the quantity of contracted solar on SCE&G's system will continue to increase well beyond the current levels.

It would better serve the interest of DEP's South Carolina rate payers, South Carolina's burgeoning solar industry, and the rest South Carolina, if DEP made a specific, multi-year commitment to pursue cost-effective utility-scale solar in its South Carolina territory. By making such a commitment and publicly communicating it, DEP will allow key stakeholders including rate payers, regulators, policy makers and solar developers to better plan for the addition of this capacity and to ensure it is integrated into DEP's system and into South Carolina's communities in the most efficient manner possible.

[1] Page 24
[2] Page 27
[3] Page 12

III. DEP Should Include a Large-Scale Utility Solar in its Resource Alternatives Screening Analysis.

In DEP's Screening of Generation Alternatives analysis[4], DEP states that it assumed a 5 MWac solar project. DEP provided no explanation for why it chose this specific size project or the appropriateness of such a size solar project for use in the screening analysis. If DEP is seeking the most cost-effective resources, Adger recommends that DEP should model a larger capacity project that benefits from greater economies of scale. It has been Adger's experience in the South Carolina market that the levelized cost of energy from projects closer to 80 MWac may be as much as 20% lower than the cost of energy from projects that are 10 MWac or smaller. In reviewing DEP's FERC-jurisdictional interconnection queue as of March 8, 2017, the largest solar project was 100 MWac, and there were eight projects in total with a combined capacity of over 500 MWac. These eight projects had an average capacity of approximately 64 MWac. Based on this, Adger would suggest that a solar project sized in the range of 64-80 MWac would be the most appropriate for DEP to use in its screening analysis as compared to a 5 MWac project.

Lastly, DEP did not clarify whether the screening analysis was based on fixed tilt or single-axis tracking technologies. With the increasing dominance of single-access trackers for utility-scale projects in the Southeast, Adger would recommend that DEP assume the use of this technology in its screening analysis or at least use it as one of the options that are analyzed.

[4] Section 6

IV. Utility-Scale Solar is Now the Least Cost New Generation Resource in the State of South Carolina.

Based on publicly available data from the US Energy Information Administration as well as private parties such as the investment bank Lazard, it is reasonable to conclude that with the possible exception of energy efficiency and some limited uprate/repowering opportunities of conventional generation, utility-scale solar is now the least cost generation resource in much of the United States, and certainly in South Carolina. Based on Adger's own experience in the development of utility-scale solar projects in South Carolina, Adger has seen the levelized cost of energy from utility-scale solar decrease to its current level of the high-$30 to high-$40/MWh range for a term of 15 years. This pricing level is at worst equal to DEP's 15-year avoided cost rate of approximately $48/MWh[5], and at best is well below it. As such, it is in the best interest of DEP's South Carolina rate payers for DEP to pursue as much solar as DEP can secure, both through power purchase agreements and utility-owned generation that is below DEP's avoided cost.

V. Adger Proposes a Near-Term Utility-Scale Solar Target for DEP of a Minimum of Approximately 260 MWac.

To maximize cost reductions for DEP's South Carolina rate payers, Adger recommends a target of no less than 260 MWac of utility-scale solar to be located in South Carolina. This quantity is approximately 20% of DEP's South Carolina peak load and also represents about 50% of the utility-scale solar in DEP's FERC-jurisdictional interconnection queue as of March 8, 2017. It should also be noted that this target is only approximately 8% of the quantity of incremental solar DEP expects to add to its system by 2030 under its high solar penetration scenario in the IRP.

[5] Direct Testimony of Emily O. Felt on behalf of DEP in Docket No.: 2016-1-E.

Adger recommends that DEP be given flexibility to develop a plan for achieving this goal. DEP should consider third-party owned solar that would be procured both through bilateral negotiations and competitive solicitations. Adger would recommend that standard contracts with third-party owned solar should be of a commercially reasonable term in the range of 15-20 years similar to what is already being offered by SCE&G in South Carolina with great success. Adger also recommends that DEP be given the ability to secure a portion of this target with utility-owned solar. By providing DEP with control over the procurement process this will ensure that the portfolio of projects that are selected provide the maximum benefits to DEP's electric grid and to its rate payers.

In terms of timing of the initiative, it is important to contract with resources that can achieve COD by December 31, 2020, because the federal incentives, including the 30% Investment Tax Credit, begin to phase out starting in 2021. This phase out of tax credits will put upward pressure on the cost of energy from utility-scale solar, thus diminishing potential savings for DEP rate payers. It should also be noted that with a typical development timeline for larger projects of two years, it is critical that DEP launch this new initiative as soon as possible to provide adequate time for the market to respond. However, it should also be noted that with over 500 MWac of active utility-scale solar projects in DEP's interconnection queue, Adger would not expect DEP to have difficulty achieving this target by 2020.

Lastly, Adger recommends that as part of this program DEP only contract with or invest in utility-scale solar that is **at or below its avoided cost.** In other words, if the cost of solar were to increase or the avoided cost to decrease such that energy from utility-scale solar projects is no longer lower than DEP's avoided cost, then DEP should not enter into any new contracts until such time as utility-scale solar can again offer quantifiable savings to DEP's rate payers.

VI. The Economic Benefits of a Utility-Scale Solar Initiative to Rate Payers and Tax Payers in DEP's Territory in South Carolina would be Considerable.

This initiative will produce significant and quantifiable benefits for rate payers and tax payers in DEP's South Carolina territory. First, the initiative would drive a large amount of direct investment in South Carolina's rural communities. The active projects in DEP's FERC-jurisdictional interconnection queue are proposed in the following counties: Clarendon, Sumter, Lee, Marion, Chesterfield, Darlington, and Kershaw. According to the South Carolina Department of Revenue's 2016 County Tier classifications, all of these counties are Tier IV or Tier III, with the one exception of Kershaw, which is Tier II. Under this classification system, Tier IV and Tier III are considered the counties that are most in need of economic development based on a range on economic indicators including unemployment and household income among others.

Based on the cost of utility-scale solar observed by Adger in the Southeast, the initiative outlined above would result in approximately **$250-$300 million in direct investment in rural communities in DEP's South Carolina territory**. Assuming these solar projects receive a 30-year Fee in Lieu of Tax, ("FILOT") agreement with counties that is based on a Special Source Revenue Credit of 40%, a depreciation rate of 5%, and a millage rate of ~.350, which is in the middle of the range of millage rates for South Carolina counties, this would equate to approximately **$32 to $39 million in tax revenue for local communities**. A more detailed breakdown of this calculation is provided in the table below:

Estimated Property Tax Revenue to Counties		
Year	**Tax Revenue**	
	$250,000,000 Investment	**$300,000,000 Investment**
1	$2,992,500	$3,591,000
2	$2,835,000	$3,402,000
3	$2,677,500	$3,213,000
4	$2,520,000	$3,024,000
5	$2,362,500	$2,835,000
6	$2,205,000	$2,646,000
7	$2,047,500	$2,457,000
8	$1,890,000	$2,268,000
9	$1,732,500	$2,079,000
10	$1,575,000	$1,890,000
11	$1,417,500	$1,701,000
12	$1,260,000	$1,512,000
13	$1,102,500	$1,323,000
14	$945,000	$1,134,000
15	$787,500	$945,000
16	$630,000	$756,000
17	$472,500	$567,000
18	$315,000	$378,000
19	$315,000	$378,000
20	$315,000	$378,000
21	$315,000	$378,000
22	$315,000	$378,000
23	$315,000	$378,000
24	$315,000	$378,000
25	$315,000	$378,000
26	$315,000	$378,000
27	$315,000	$378,000
28	$315,000	$378,000
29	$315,000	$378,000
30	$315,000	$378,000
TOTAL	**$32,602,500**	**$39,123,000**

Assumptions	
Millage Rate	0.350
Assessment Ratio	6%
Depreciation Rate of Machinery & Equipment	5%

Additionally, assuming average savings on DEP's avoided cost of 10-20%, and an average capacity factor of the solar of 26%, which assumes the use of single-axis trackers, this would equate to approximate DEP rate payer savings over a 15-year period of approximately **$34-$68 million.** A more detailed breakdown of this calculation is provided below.

DEP Rate Payer Savings			
Year	**Production (MWh)**	**Rate Payer Savings - 10% Below Avoided Cost**	**Rate Payer Savings - 20% Below Avoided Cost**
1	592,176	$2,368,704	$4,737,408
2	589,215	$2,356,860	$4,713,721
3	586,269	$2,345,076	$4,690,152
4	583,338	$2,333,351	$4,666,702
5	580,421	$2,321,684	$4,643,368
6	577,519	$2,310,076	$4,620,151
7	574,631	$2,298,525	$4,597,050
8	571,758	$2,287,033	$4,574,065
9	568,899	$2,275,597	$4,551,195
10	566,055	$2,264,219	$4,528,439
11	563,225	$2,252,898	$4,505,797
12	560,408	$2,241,634	$4,483,268
13	557,606	$2,230,426	$4,460,851
14	554,818	$2,219,274	$4,438,547
15	552,044	$2,208,177	$4,416,354
TOTAL	**8,578,384**	**$34,313,535**	**$68,627,069**

Assumptions	
Annual Production Degradation	0.05%
Net Capacity Factor	26%
Average Savings	$4.00/MWh
15-year Levelized Avoided Cost	$48.00/MWh

Finally, the construction of the 260 MWac of utility-scale solar would provide badly needed construction jobs for South Carolina. Based on Adger's experience in South Carolina, it would expect this initiative to create 700-1,100 well-paying temporary construction jobs.

VII. DEP Should Create a Program in South Carolina that Allows Large Customers to Purchase Energy and Environmental Attributes from Utility-Scale Solar.

DEP states in the IRP[6] that it is evaluating the potential creation of a program for its South Carolina territory similar to the Greensource Rider program that was adopted in Duke Energy Carolina's, ("DEC") territory in North Carolina. Under the Greensource Rider program, large customers that meet certain qualifications are eligible to purchase both energy and environmental attributes from a renewable energy generator in DEC's system. The program is designed to allow entities to both meet voluntary green energy and carbon reduction goals as well as to receive a long-term hedge on retail energy rates that reflects the fixed-price nature of many renewable resources such as solar.

Adger has observed a considerable amount of interest in South Carolina from large corporations, local governments, colleges and universities, and military bases in purchasing green power to meet voluntary targets. Without such a program these entities have limited contracting options in vertically-integrated electricity markets such as South Carolina's and no ability to secure a long-term hedge on their retail rates. Therefore, having such a program in place will help make DEP's territory more competitive for both retaining existing customers and attracting new customers. Adger recommends that DEP convene a working group within the next month to develop a program that would serve the needs of these large customers.

[6] Page 25

VIII. Conclusion

With continued reductions in equipment pricing and the development of more efficient solar construction methods, utility-scale solar in South Carolina is now not only the least cost new generation resource but has the ability to provide energy at below DEP's avoided cost. Under these circumstance, all the utility-scale solar that DEP is able to secure either through contracted solar or through utility-owned generation will result in direct and quantifiable savings to its rate payers. It is therefore appropriate that DEP proceed immediately with the creation of a new initiative that would seek a minimum of 260 MWac of utility-scale solar project that would be operational by the end of 2020. Adger estimates that the creation of a such a program would result in tens of millions of dollars in savings for DEP's rate payers and tens of millions of dollars in tax revenue and well-paying jobs for some of the counties in DEP's territory that are most in need of economic development.

Finally, with many corporations, educational institutions, and government entities in South Carolina having established green energy procurement targets DEP should proceed with the creation of an innovative new program that allows these entities to meet their green energy targets in a cost-effective manner.

BEFORE

THE PUBLIC SERVICE COMMISSION

OF SOUTH CAROLINA

DOCKET NO. 2016-8-E

IN RE: Duke Energy Progress, LLC's Integrated Resource Plan (IRP)	)	**CERTIFICATE OF SERVICE**

I, Carrie A. Schurg, an employee of Austin & Rogers, P.A., certify that I have served copies of the Docket Cover Sheet, Comments of Timothy Daniels on behalf of Adger Solar, LLC and this Certificate of Service, as indicated below, via electronic mail on April 27, 2017.

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/S/_____
Carrie A. Schurg

April 27, 2017
Columbia, South Carolina